

Remarks:

The amendments do not introduce new matter.

In the Specification:

Applicant requests that the foregoing amendments to the specification be made. These do not include new matter because amendments 1-7 repair an error and amendment 8 clarifies the relationship between two equivalent ways of describing the invention. The algebra of probabilities as described in the preferred embodiment discusses a probability that the radioactive source is background radiation. When that probability is sufficiently low, then that means the source is not background, that is, it's a hit (a source is either background or a hit). The invention can also be expressed equivalently as a probability that the radiation source is a hit. In this case, when the probability is sufficiently high, the source is a hit. Thus, the invention can be thought of as either checking whether the former probability is calculated to be low or the latter probability calculated to be high. The applicant chose to explain the preferred embodiment in terms of calculating a probability that the source is background and the algebra in the specification is presented as such. However, an error crept into the descriptive language (where indicated in amendments 1-7) that is inconsistent with this algebra because it describes the invention the other way: in terms of the probability that the source is a hit. Practitioners of ordinary skill would recognize the obvious errors presented in amendments 1-7 and their correction because each probability is inherently related to the other: the first probability is always equal to one minus the second. Therefore, the amendments make the wording of the written description in that part of the specification consistent with algebraic presentation of the preferred embodiment.

With regard to the supplemental paragraph, the supplemental paragraph clarifies language in the disclosure where in some places it discusses a probability of a source and that value being above a threshold while in others describes a probability of background and the value being below a threshold. These are inherently related. It is an inherent property of the invention that if the probability of a count being background is X , the probability that it is a hit is $1-X$. Therefore, by algebraic proof, if one checks whether X is less than a threshold, that is inherently the same as checking whether $1-X$ is greater than 1 -threshold. This inherent property arises from the fact that there are only two possible states: either the count came from background or it came from a radioactive source. It is permissible for the applicant to expressly state that which is inherent in the disclosure as filed. MPEP 2163.07(a) states that "by disclosing ... a device that inherently ... has a property a patent application necessarily discloses that function ... even though it says nothing explicit about it." "The express description of the inherent property, since not 'new matter', could be added to the specification with effect as of the original filing date." *In re Reynolds*, 58 C.C.P.A. 1287, 443 F.2d 384, 170 U.S.P.Q. (BNA) 94 (CCPA 1971); *See Also Therma-Tru Corp. v. Peachtree Doors Inc.*, 44 F. 3d. 988, 33 U.S.P.Q. 1274 (Fed. Cir. 1994); *Kennecott v. Kyocera* 835 F.2d 1419, 5 U.S.P.Q.2D 1194 (Fed. Cir. 1987).

Additional express support for the new paragraph can also be found on Page 5, Line 14 of the disclosure, where the paragraph describes obtaining counts rather than the calculated probability of the counts being from background. In that paragraph, "obtaining counts above a predetermined threshold level" is described where in the same paragraph it states that "only sources give counts simultaneously in both detectors." Similar descriptive language is presented on Page 4, Line 13.

Examiner is requested to accept the new paragraph because there is existing supporting language in the specification, there is inherency and the additional paragraph clarifies the disclosure.

In the Claims:

Applicant respectfully requests that the examiner accept the new claims presented in this preliminary amendment as the first claims presented. Some of these claims are broader than those filed with the specification. It is hornbook law that a patent can claim more than the extent of the preferred embodiment. The Federal Circuit "has continued to apply the rule that disclosure of a species may be sufficient written description support for a later claimed genus including that species." Bilstad v. Wakalopoulos, Fed. Cir. 03-1528, decided October 7, 2004. The initially filed claims were directed to a single embodiment of the invention, that is, a species of calculating the correlation of radiation counts between detectors and time slices. However, applicant asserts that the invention is not limited to that specific species, and that other numerical formulas may be used to detect correlations between detectors or time slices that are consistent with radioactive sources of concern. Specifically, applicant has generically described the invention on Page 4, Lines 18-23, and therefore is entitled to claim as such.

With regard to Claims 53-64, as explained above regarding the amendments to the specification, the invention can be explained and therefore claimed either as checking the probability that the source is background or the probability that the source is a hit. Each probability is equal to one minus the other, in the same manner that the chances of flipping heads is one minus the chance of flipping tails: the radiation source is either background or a hit. MPEP 2163.07(a) states that "by disclosing ... a device that inherently ... has a property a patent application necessarily discloses that function ... even though it says nothing explicit about it." Therefore, the description of the preferred embodiment in terms of the probability that the source is from background inherently discloses the same invention but in terms of the probability that the source is a hit.

Additional support for the new claims can be found on Page 5, Line 14, where the paragraph describes obtaining counts rather than the calculated probability of the counts being from background. In that paragraph, "obtaining counts above a predetermined threshold level" is described where in the same paragraph it states that "only sources give counts simultaneously in both detectors." Similar descriptive language is presented on Page 4, Line 13. The new paragraph added to the specification that expresses that which is inherent in the disclosure provides express antecedence for these additional claims.

As a result, these additional claims are therefore supported by the disclosure, both in its current form and after amendment to the specification.